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Cooperative Economic Insect Report

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PLANT PROTECTION AND QUARANTINE PROGRAMS
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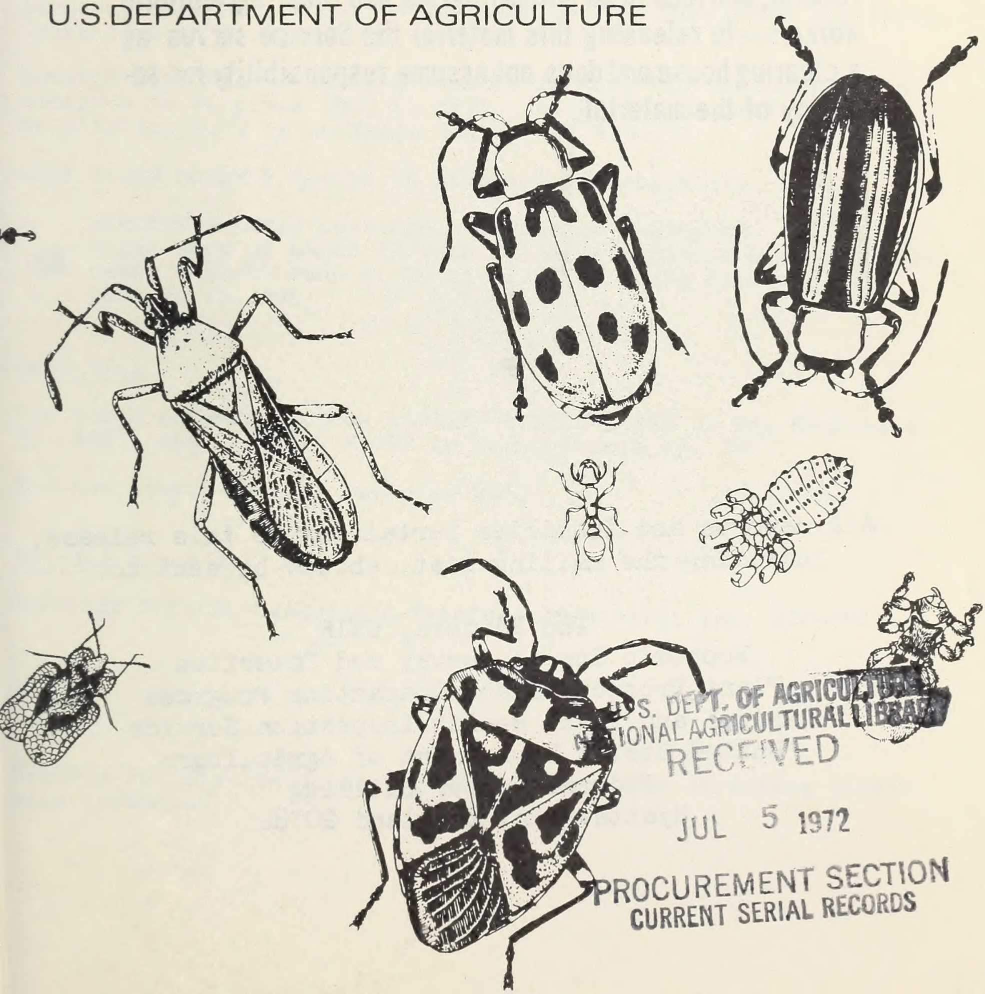

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The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Service serves as a clearing house and does not assume responsibility for accuracy of the material.

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Volume 22 June 23, 1972 Number 25

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

ARMYWORM moth catches heavy in northeast Ohio. BLACK CUTWORM caused some damage in Ohio and 3 Central States. (p. 381).

ALFALFA BLOTCH-MINER damaged alfalfa in some Northeastern States. ALFALFA WEEVIL heavy in some Western and Central States, declining in other areas. (p. 383).

MEXICAN BEAN BEETLE and BEAN LEAF BEETLE above normal on soybeans in Maryland. (p. 384).

BOLL WEEVIL population heavier than for 2 years in northeast Alabama, emergence heavy in southern Georgia. BOLLWORM egg laying increasing in Mississippi, heavy in Alabama. (p. 385).

TOBACCO FLEA BEETLE damaged tobacco in Ohio and Kentucky; less numerous in Virginia than in 1971. (p. 385). PEA LEAF WEEVIL defoliating peas in northern Idaho. (p. 386).

HEEL FLIES running cattle in Utah and Wisconsin. (p. 389).

● SCREWWORM cases continue numerous in Southwest. Buildup began week of March 19 with 22 cases, reached high of 3,014 cases week of June 4. Total of 2,664 cases reported this period. (p. 388).

Detection

New State records include ALFALFA BLOTCH-MINER in New Hampshire (p. 383), and 2 SPIDER MITES in Pennsylvania (p. 387).

For new county records see page 386.

Special Reports

JAPANESE BEETLE. Selected References 1970-1971. (pp. 395-397).

Reports in this issue are for week ending June 16 unless otherwise indicated.

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NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

MID-JUNE TO MID-JULY 1972

The National Weather Service's 30-day outlook for mid-June to mid-July is for temperatures to average above seasonal normals over the western two-thirds of the Nation except for near to below normal along the north and central Pacific coast and in the southern Plains. Below normal temperatures are indicated for the Southeast. Elsewhere near normal temperatures are in prospect. Rainfall is expected to exceed normal over the southern Plateau region as well as the north and central Pacific coast and the southeast coast. Subnormal totals are indicated for most of the central and southern Plains, southern California, the Great Lakes region, and the Northeast. In unspecified areas. near normal amounts are expected.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the National Weather Service. You can subscribe through the Superintendent of Documents, Washington, D.C. 20250. Price $5.00 a year.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - MONTANA - Infested 120 acres of winter wheat in Blaine County; about to pupate but continues to feed and keep grain eaten off. This is extremely late for this insect to be active in State. (Pratt). NORTH DAKOTA - Totally destroyed 20 acres of 40-acre sunflower field in Pembina County. (Kaatz). MINNESOTA - Damaging sugar beets in Red River Valley. Infestation centered in Norman County. (Minn. Pest Rpt.).

ARMYWORM (Pseudaletia unipuncta) - NEBRASKA - Larvae ranged 6-7 per square yard in lodged wheat near Mead, Saunders County. (Berogan, Roselle). OHIO - Damaged some corn in Belmont County; replanting required. (Bonnett). Reported cutting wheat heads in Darke County. (Vermillion). Moth catches heavy in blacklight traps at Wooster, Wayne County. (Rings). KENTUCKY - Damage light (less than 1 percent) on corn in Woodford County. (Barnett). VIRGINIA - Small grains treated for larval control in Westmoreland County. (Ptucha).

ASTER LEAFHOPPER (Macrosteles fascifrons) - MINNESOTA - Nymphs present in oats, wheat, and bluegrass in southeast district. Nymphs and adults per 100 sweeps ranged 30-600 in southeast district, 10-100 per 100 sweeps in southwest and west-central districts. (Minn. Pest Rpt.). MICHIGAN - Densities of this pest and percent infectivity with aster yellows unusually high. Controls should continue. (Sauer).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Moderate to heavy on sorghum in Nowata County; ranged 0-40 per plant in young sorghum in Ottawa County. (Okla. Coop. Sur.). KANSAS - Winged forms left maturing wheat for seedling sorghum in Clay, Washington, Cloud, and Mitchell Counties; averaged up to 2 per plant in Mitchell County near Beloit. Recent heavy rains reduced infestations on sorghum in southwest area. (Bell). NEBRASKA - Populations unchanged in grain sorghum in southern area with little damage. Rain aiding small sorghum to outgrow possible damage. Few scattered reports of control activity, but treatments not widespread. No greenbugs observed in one Saunders County field, only occasional alates in another field. (Roselle, Berogan). Ranged 5-10 per plant with 70 percent of plants infested in some Lincoln County fields. (Campbell, McEvoy).

CORN, SORGHUM, SUGARCANE

BLACK CUTWORM (Agrotis ipsilon) - KANSAS - Full-grown larvae caused light to moderate damage to corn and sorghum in Brown, Pottawatomie, Ottawa, and Osage Counties. (Bell). NEBRASKA - Caused scattered damage to corn and sorghum in Dodge, Saunders, and Nemaha Counties. Larvae past effective control in Nemaha County. (Keith, Berogan). Occasional fields in Dodge County show 20-30 percent stand reduction. (Novotny). IOWA - Damaged many low-lying corn fields in eastern, southern, and central areas week ending June 9. Replanting necessary in some fields or portions of fields. Pupation begun. Many small larvae present. Controls applied. Activity has currently subsided. Larvae cutting off corn in Wapello County. (Iowa Ins. Sur.). OHIO - Destroyed 60 percent of 5 acres of corn in 30-acre planting in Wayne County. (Musick, Rings).

EUROPEAN CORN BORER (Ostrinia nubilalis) - NEBRASKA - Moths increased in light traps at Aurora, Hamilton County, and at Concord, Dixon County. Moths heavy in field margins in Gothenburg and Cozad area, Dawson County. (Campbell). Egg masses ranged 1-28 per 100 24-inch corn plants, in Saunders County; near 5 percent of plants with feeding signs. Injury evident on 3 percent of plants in Nemaha County field. (Roselle et al.). MINNESOTA - First egg laying and hatch of season in southern area as far north as Dakota County. Moth emergence ranges from trace in west-central district to 30 percent in southeast district. (Minn. Pest Rpt.). WISCONSIN - Fresh eggs ranged 4-6 per 100 plants in Hancock and Endeavor areas. Adults numerous in corn, oats, and uncultivated fields that contained corn in 1971. Larval feeding not observed. (Wis. Ins. Sur.). MICHIGAN - Peak adult flight occurred June 6-9 in Lenawee County. Peak egg hatch should be underway in southern areas about 7-10 days earlier than in 1971. Second-generation moths could begin emerging third week of July. (Sauer). IOWA - Moth emergence 70-75 percent by June 14. (Iowa Ins. Sur.). ILLINOIS - Egg masses averaged 18 per 100 plants (73 percent hatched) and 30 percent of plants showed whorl feeding in Pike County. (Ill. Ins. Rpt.).

MARYLAND - Egg laying by O. nubilalis continues on Eastern Shore, very little activity on western shore. First-instar larvae infested less than 5 percent of stalks in most fields in Talbot, Dorchester, and Somerset Counties. (U. Md., Ent. Dept.). DELAWARE - Larvae averaged 4 per plant in untreated field corn in one area of Sussex County; mostly second and third stage. (Burbutis, Kelsey). NEW JERSEY - Moths active, eggs hatching. Controls needed on corn statewide. Up to 3 of 10 plants found with egg masses in Burlington and Somerset County fields. (Ins.-Dis. Newsltr.). NEW YORK - First moth flight noted in Monroe, Orleans, and Genesee County area week ending June 9. Adult catches declined at Geneva week of June 6, due to cool weather. Adult emergence 90 percent by June 12. (N.Y. Wkly. Rpt.).

GRASS THRIPS (Anaphothrips obscurus) - KENTUCKY - Percent foliar loss to corn by county: Grayson 5, Muhlenberg 7, Butler 5, Hopkins 1, Breckinridge less than one. (Barnett).

CHINCH BUG (Blissus leucopterus leucopterus - KANSAS - Up to 10 nymphs per plant found on seedling sorghum in Osage County; trace in Riley County. (Bell).

BANKS GRASS MITE (Oligonychus pratensis) - COLORADO - On corn in Pueblo, Crowley, Otero, Bent, and Prowers Counties. (Schweissing).

TURF, PASTURES, RANGELAND

GRASSHOPPERS - MINNESOTA - First and second-instar nymphs, mainly Melanoplus femurrubrum, averaged 12+ per square yard in alfalfa and grass field in Waseca County. Hatch well underway in sandy soil areas, just beginning in heavier soil areas, in southeast and south-central districts. Most eggs in segmented stage in west-central district; hatch expected soon. (Minn. Pest Rpt.).

BANKS GRASS MITE (Oligonychus pratensis) - NEVADA - Populations of this mite and Anaphothrips obscurus (grass thrips) increased rapidly on timothy hay in Douglas County. (Munk).

FORAGE LEGUMES

ALFALFA BLOTCH-MINER (*Agromyza frontella*) - NEW HAMPSHIRE - Collected in Rockingham County June 1, 1972, by J.S. Bowman. Determined by G.S. Steyskal. This is a new State record. Infested 40-90 percent of alfalfa leaves in all alfalfa fields in every county. (Blickle). NEW YORK - Intensive survey conducted June 4-10 in Broome, Chenango, Herkimer, Madison, and Otsego Counties. Adults, larvae, and mines, found at single location in Otsego County. This is a new county record. All other sites negative. This pest now confirmed for 16 counties in State. Damage more severe than in 1972. Damaged field of alfalfa in Orange County; field gray except for lower leaves. Damage severe to alfalfa in Dutchess County; 3,000 acres treated. (N.Y. Wkly. Rpt.). MASSACHUSETTS - Damage spotty in Berkshire County; heavy in some fields, light in others. Adults 60 per 25 sweeps in one farm field. (Crop Pest Cont. Mess.).

ALFALFA WEEVIL (*Hypera postica*) - NEVADA - Larval development about 2 weeks ahead of normal in White Pine County; 300+ per sweep taken before treatment in many alfalfa fields. Larvae ranged 30-35 per sweep in some treated fields; re-treating may be needed. Increasing in many treated fields in Douglas County; re-treatment may be necessary. (Lauderdale et al.). IDAHO - Damage general. Adults ranged up to 10 per sweep in year-old alfalfa at Potlatch, Latah County, June 10. (O'Keeffe). Damage light to heavy throughout Jefferson County. Some fields cut before treatment, others treated to be harvested later. Parasitic wasps, damsel bugs, and other predators scarce. (Gooch, June 9). UTAH - Caused extensive damage in Cache, Box Elder, Weber, Davis, Salt Lake, Utah, and Millard Counties, where adequate control not applied. Much alfalfa cut early to stop larval damage. Adults of *Bathyplectes curculionis* (an ichneumon wasp) very numerous, often 3-10 in 10 sweeps, in Delta, Sutherland, Oasis area of Millard County. (Knowlton). COLORADO - Larval numbers declining in the lower Arkansas Valley. (Schweissing). NEBRASKA - Two larvae taken in 2 sweeps in Valley County, one larva in 200 sweeps in Greeley County. These are new county records. (Manglitz). SOUTH DAKOTA - Very heavy in alfalfa near Spearfish, Lawrence County. Heaviest in untreated fields, 96 adults and 11,762 larvae per 100 net sweeps. Most larvae first instar. Damaging populations reported east of Red Owl, in northeastern Meade County. (Walstrom, Jones).

ARKANSAS - *H. postica* larvae in northwest area declined to low level; 25-30 per 100 sweeps in uncut experimental alfalfa field. Larvae first found first week of March; increased to 15,000 per 100 sweeps in mid-April. (Boyer). IOWA - Larvae per 100 sweeps in alfalfa by county averaged 25 in Warren, 40 in Wayne, 90 in Appanoose, 43 in Mahaska, and 38 in Poweshiek. Adults less than 4 per 100 sweeps in same counties week ending June 9. Damage light in all fields; chemical treatments not required due to maturity of alfalfa. *B. curculionis* collected from larvae in Appanoose County. *H. postica* collected in Humboldt, Pocahontas, Calhoun, Carroll, Crawford, Harrison, Shelby, Audubon, Guthrie, Dallas, Cass, Fremont, Page, and Taylor Counties week ending June 9. These are new county records. Reported for first time in Cerro Gordo, Franklin, Black Hawk, and Chickasaw Counties week ending June 16. Now recorded in all but 18 northern and northwestern counties. (Iowa Ins. Sur.). WISCONSIN - Counts in Outagamie, Waupaca, Portage, and Waushara Counties ranged 2-6 per 10 sweeps. Counts in Columbia and Dodge Counties averaged 3 per 10 sweeps. Parasitism by Bathyplectes sp. ranged 33-100 percent at 6 selected sites. (Wis. Ins. Sur.). MINNESOTA - Found for first time in Watonwan, Martin, Sibley, and McLeod Counties. (Minn. Pest Rpt.). MARYLAND - Some larval activity in alfalfa statewide. Most fields ranged well below 10 larvae per sweep in Montgomery, Talbot, Dorchester and Prince Georges Counties. (U. Md., Ent. Dept.). MASSACHUSETTS - Larvae 550 per 25 sweeps in one Berkshire County field. (Crop Pest Cont. Mess.).

LYGUS BUGS (Lygus spp.) - UTAH - Ranged 0-12 per 10 sweeps, averaged 4, in chemically treated alfalfa seed fields in Delta and Sutherland area of Millard County. (Knowlton, Parrish). OKLAHOMA - L. lineolaris (tarnished plant bug) heavy in alfalfa in Caddo and Washita Counties. (Okla. Coop. Sur.).

SOYBEANS

MEXICAN BEAN BEETLE (Epilachna varivestis) - MARYLAND - Overwintered adults above normal. Heaviest in the past 5 years in Wicomico, Somerset, Dorchester, and Worcester Counties. Controls applied to several hundred acres in Dorchester County. Many growers used systemic compounds to avoid expected heavy populations on lower Eastern Shore. Counts ranged from 1-10 per yard of row, averaged 2 in most fields. (U. Md., Ent. Dept.). INDIANA - Averaged 1 adult per 2 row feet of soybeans with 2 trifoliate leaves in Morgan County. Egg masses averaged 1 per 4 row feet. Observed in one field in county in area where species was pest in 1971. (Meyer).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MARYLAND - Above normal, with moderate to heavy damage in 10 percent of acreage in Dorchester and Wicomico Counties. Most fields on Eastern Shore outside these counties had light counts of 2-4 per 10 row feet. (U. Md., Ent. Dept.). KENTUCKY - Caused 5 percent foliar loss to soybeans 1-2 inches tall in Breckinridge County. Minor damage in Hopkins and Butler Counties. (Barnett).

GRASSHOPPERS - OHIO - Nymphs ranged 0-4 per plant on 4-inch soybeans in Fayette County; feeding damage evident on about every plant. (Fox).

COTTON

BOLL WEEVIL (Anthonomus grandis) - TEXAS - In McLennan and Falls Counties, punctured squares averaged 0.9 percent in 58 treated fields, maximum 6.2; averaged 2.8, maximum 21, percent in 8 untreated fields. (Cowan et al.). MISSISSIPPI - Averaged 3.1 per trap per county in 10 southern counties. Weevils averaged 8.3 and 6 per trap for 10 traps, respectively, in Grenada and Yalobusha Counties. (Robinson). ALABAMA - Counts per acre on 5 to 10-leaf cotton on 4 farms in Marshall County, 88, 22, 66, and zero. (Murphy). Counts per acre light on 4 farms in Morgan County; only one, first of season, collected. (Rutledge). Overwintered weevils in most of 10 fields surveyed in Cherokee County; population much heavier and earlier than in 1970 and 1971. Occasional weevil observed in Limestone County; heavy in Lee County. (McQueen). GEORGIA - Emergence from hibernation continues heavy; up to 25 percent punctured squares on some older cotton over southern area. (Womack, June 9). TENNESSEE - Overwintered weevils light in fields in southern tier of counties. Some feeding noticed. (Gordon, Bruer).

BOLLWORMS (Heliothis spp.) - ARIZONA - H. zea larvae averaged 3 per 5 plants in some Yuma County cotton fields. (McHenry). TEXAS - Heliothis spp. eggs averaged 1.5, larvae 0.6 per 100 terminals in 70 treated fields in McLennan and Falls Counties. In 11 untreated fields, eggs averaged 0.4 and larvae 0.2 per 100 terminals. Injured squares averaged 2.8 percent in 58 treated fields, 0.9 percent in 8 untreated fields. Of 36 larvae collected from cotton, 28 or 78 percent H. virescens. (Cowan et al.). MISSISSIPPI - Egg laying increasing over State. Light traps indicate moth flight underway in delta counties. H. zea dominant. Eggs found in several southern counties, and in Noxubee, Rankin, Tunica, and Warren Counties. (Robinson). OKLAHOMA - H. zea larvae appearing in young cotton in Chickasha area, Grady County. (Okla. Coop. Sur.). ALABAMA - Egg laying by H. zea heavy throughout State; larvae ranged 1-5 per 100 terminals due to predators and parasites. (James et al.). TENNESSEE - Eggs and small larvae of H. zea found in some fields in western areas. Counts per terminal very low. (Gordon, Bruer).

COTTON FLEAHOPPER (Pseudatomoscelis seriatus) - OKLAHOMA - Heavy, 100 per 100 terminals, in cotton in Caddo and Washita Counties. Some nymphs seen in Grady County. (Okla. Coop. Sur.).

APHIDS - TENNESSEE - Infesting cotton in middle and western areas. Have reached control levels in some fields and some farmers have begun controls. Terminals are being damaged. Beneficial insect populations are not present in numbers enough to provide control in fields where aphids are at control levels. (Delap et al.).

TOBACCO

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - VIRGINIA - Adults light to moderate and feeding on newly transplanted tobacco in Pittsylvania County. Overwintering beetles less numerous than in 1971. (Dominick, June 1). KENTUCKY - Percent foliar loss to tobacco by counties: 2 on 4-leaf stage in Woodford; 6 on 2 to 3-leaf stage in Grayson; less than one percent in Shelby; 10 on 2 to 3-leaf stage in Hardin. Minor damage in Breckinridge. (Barnett). OHIO - Adults ranged 2-9 per plant in tobacco bed in Brown County. Every leaf per plant with small holes. Most plants weakened, with one or more yellowed and wilted leaves. (Fox).

TOBACCO HORNWORM (Manduca sexta) - GEORGIA - Light to moderate on tobacco over southern area. (French, June 9).

POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - NORTH DAKOTA - Adults up to 5 per 50 plants taken in Pembina County, up to 15 per 50 plants in Walsh County. Egg masses ranged up to 20 per 50 plants; hatch occurred in some fields. Larvae ranged up to 25 per 50 plants. (Kaatz). NEW JERSEY - Still abundant and laying eggs in many potato plantings. Larvae stripping leaves at row ends where little insecticide applied. (Ins.-Dis. Newsltr.).

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - MARYLAND - Second and third instar larvae infested 5 percent of potatoes in 200 acres in Somerset and Worcester Counties. (U. Md., Ent. Dept.).

BEANS AND PEAS

PEA LEAF WEEVIL (*Sitona lineatus*) - IDAHO - Adults, 4 per sweep (30 per square foot), severely defoliating pea field stands at Potlatch, Latah County. (Tekleab, O'Keeffe).

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - MISSISSIPPI - Moderate in 10 fields of lima and string beans in Copiah County. (Robinson).

GENERAL VEGETABLES

MOTTLED TORTOISE BEETLE (*Deloyala guttata*) - MARYLAND - Populations on sweetpotatoes slightly above 1971 levels. Controls applied to 200 acres in Wicomico County. (U. Md., Ent. Dept.).

SWEETPOTATO FLEA BEETLE (*Chaetocnema confinis*) - MISSISSIPPI - Light to medium damage to sweetpotato plants set in fields in May in Calhoun and Chickasaw Counties. (Killebrew, Clayton).

DETECTION

New State Records - ALFALFA BLOTCH-MINER (*Agromyza frontella*) - NEW HAMPSHIRE - Rockingham County. (p. 383). SOUTHERN RED MITE (*Oligonychus ilicis*) - PENNSYLVANIA - Monroe County. (p. 387). A SPIDER MITE (*O. bicolor*) - PENNSYLVANIA - Allegheny County. (p. 387).

New County Records - ALFALFA WEEVIL (*Hypera postica*) NEBRASKA - Valley, Greeley. IOWA - Humboldt, Pocahontas, Calhoun, Carroll, Crawford, Harrison, Shelby, Audubon, Guthrie, Dallas, Cass, Fremont, Page, Taylor, Cerro Gordo, Franklin, Black, Chickasaw. MINNESOTA - Watonwan, Martin, Sibley, McLeod (p. 383). CEREAL LEAF BEETLE (*Oulema melanopus*) ILLINOIS - Schuyler, Adams, Brown, De Kalb, Monroe, Pope, Lee, Union, Pulaski. INDIANA - Daviess. MARYLAND - Frederick, Howard, Montgomery, Carroll. VIRGINIA - Stafford, Culpeper, Madison, Clarke, Rappahannock (p. 390). LONE STAR TICK (*Amblyomma americanum*) INDIANA - Martin (p. 390). SMALLER EUROPEAN ELM BARK BEETLE (*Scolytus multistriatus*) CALIFORNIA - Napa (p. 388).

CORRECTIONS

CEIR 22(19):267 - ARMYWORM (Pseudaletia unipuncta) - Delete Nevada from paragraph. Nevada should read: *ARMY CUTWORM* (*Euxoa auxiliaris*).

DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Laspeyresia pomonella) - MAINE - Heavy in pheromone traps; no oviposition seen. (Wave). NEW JERSEY - First-generation moth emergence peaked end of May; now on decline. (Ins.-Dis. Newsltr.). ALABAMA - Larval damage ranged 2-15 percent on untreated apples in Randolph and Morgan Counties. (Shumpert et al.). WASHINGTON - In Yakima County, first full-grown larvae seen June 12, first exit holes June 13, fresh larval entries June 13. (Gregorich).

PLUM CURCULIO (Conotrachelus nenuphar) - MARYLAND - Heavy damage to apples and peaches in 60-acre orchard near Hancock, Washington County. (U. Md., Ent. Dept.).

PEAR PSYLLA (Psylla pyricola) - WASHINGTON - Oviposition begun. First summer-generation egg hatch June 6 at West Valley, Yakima County. (Gregorich).

APPLE MAGGOT (Rhagoletis pomonella) - NEW JERSEY - First flies of year caught in bait traps at Glassboro, Gloucester County, and Allentown, Ocean County, week of June 7-14. (Ins.-Dis. Newsltr.).

EUROPEAN RED MITE (Panonychus ulmi) - OHIO - Increased in central and southern districts; not yet economic. Few successive days of hot, dry weather will cause rapid and heavy increase in population. (Holdsworth).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - First-generation damage heavy on pecans in Cotton County, light to moderate in Garvin County, and light in Marshall County. (Okla. Coop. Sur.).

BLACKMARGINED APHID (Monellia costalis) - MISSISSIPPI - Heavy buildup on pecans in Warren, Harrison, Madison, and Lee Counties. Light to medium on pecans in Lowndes County; honeydew present in all areas. (Neel).

ORNAMENTALS

SPIDER MITES (Oligonychus spp.) - PENNSYLVANIA - All stages of O. bicolor found on pin oak in Pittsburgh, Allegheny County, July 28, 1971, by R. Henry and L. Garrett. All stages of O. ilicis collected from Buxus sempervirens in Stroudsburg, Monroe County, July 29, 1971, by A. Wheeler. Both species determined by E.W. Baker. These are new State records. (Kim).

BAGWORM (Thyridopteryx ephemeraeformis) - TENNESSEE - Damaged junipers, viburnum, and white pine in south-central area. Populations high with several hundred bagworms on some plants. (Cagle). PENNSYLVANIA - First egg hatch of season noted on Pyramidal arborvitae in Colonial Park, Dauphin County, June 6. (Simons).

AZALEA LACE BUG (Stephanitis pyrioides) - GEORGIA - Unusually heavy this year and damaging azaleas in Spalding and Peach Counties (Tippins, June 9).

FOREST AND SHADE TREES

SPRUCE BUDWORM (*Choristoneura fumiferana*) - WISCONSIN - Defoliation moderate to heavy on 1,000 acres of balsam and white spruce in Oneida County; most larvae pupated. (Wis. Ins. Sur.). PENNSYLVANIA - Larvae damaged 90 percent of *Pinus strobus* foliage in Berks County. Taken on Norway spruce in Lehigh County June 5. (Stearns, Henry). NEW YORK - Minor infestation primarily on ornamental blue spruce in Lockport area, Niagara County. (N.Y. Wkly. Rpt., June 9).

OAK LEAFTIER (*Croesia albicomana*) - PENNSYLVANIA - Heavy feeding on all trees except white oak and chestnut in Wayne and Pike Counties; 100 percent foliage loss reported. (Kim, June 6).

SPRING CANKERWORM (*Paleacrita vernata*) - SOUTH DAKOTA - This pest and *Alsophila pometaria* (fall cankerworm) defoliated elms in southeastern area. Larvae averaged 40 per 2-3 feet of branch in southeastern Moody County. (Jones, Kantack, June 9).

ELM LEAF BEETLE (*Pyrrhalta luteola*) - NEW MEXICO - Damage heavy to elm trees in Alameda, Bernalillo County. (Heninger). OKLAHOMA - Damage moderate to heavy to Siberian elms in most of State. First-generation pupae most common form in Major County, adults active in Payne County. (Okla. Coop. Sur.). KANSAS - First-generation adults emerged and severely damaged Siberian elm foliage in Sedgwick, Butler, and Reno Counties. (Bell). INDIANA - First-generation larval populations much smaller than last two years in west-central and central areas. Oviposition considerabley less than before, adults fewer than normal. (Meyer).

SMALLER EUROPEAN ELM BARK BEETLE (*Scolytus multistriatus*) - CALIFORNIA - Larvae pupae, and adults in Napa County. This is a new county record. (Cal. Coop. Rpt.).

MAN AND ANIMALS

SCREWWORM (*Cochliomyia hominivorax*) - Total of 2,664 cases reported in U.S. June 11 thru 17, 1972, as follows: TEXAS: Andrews 1, Aransas 1, Archer 1, Atascosa 67, Bandera 26, Bastrop 19, Bee 91, Bexar 42, Blanco 8, Borden 12, Bosque 1, Brazos 1, Brewster 17, Briscoe 1, Brooks 83, Brown 6, Burleson 2, Burnet 4, Caldwell 21, Callahan 3, Cameron 1, Clay 1, Cochran 1, Coke 4, Coleman 7, Colorado 5, Comal 16, Comanche 6, Concho 4, Coryell 1, Crockett 27, Culberson 2, Dawson 1, De Witt 87, Dimmit 60, Duval 74, Eastland 2, Edwards 77, Ellis 2, Erath 4, Falls 1, Fayette 5, Fisher 2, Frio 70, Garza 1, Gillespie 43, Glasscock 1, Goliad 88, Gonzales 70, Guadalupe 20, Hardeman 1, Haskell 2,Hays 4, Hidalgo 33, Hill 1, Hood 1, Howard 4, Hudspeth 1, Irion 5, Jackson 5, Jeff Davis 1, Jim Hogg 36, Jim Wells 68, Johnson 1, Jones 2, Karnes 32, Kendall 16, Kenedy 39, Kent 1, Kerr 23, Kimble 26, Kinney 58, Kleberg 17, Knox 1, Lampasas 1, La Salle 64, Lavaca 45, Leon 1, Live Oak 55, Llano 6, Madison 1, Mason 14, Maverick 27, McCulloch 4, McMullen 27, Medina 72, Menard 9, Milam 2, Mills 2, Mitchell 10, Nolan 4, Nueces 22, Pecos 8, Polk 1, Presidio 7, Real 30, Reeves 2, Refugio 35, Robertson 18, San Patricio 9, San Saba 3, Schleicher 3, Scurry 5, Shackelford 1, Somervell 1, Starr 114, Stephens 2, Sterling 2, Stonewall 4, Sutton 22, Taylor 2, Terrell 22, Throckmorton 12, Tom Green 3, Travis 2, Upton 1, Uvalde 72, Val Verde 77, Victoria 30, Webb 101, Wilbarger 2, Willacy 24, Williamson 10, Wilson 70, Young 3, Zapata 30, Zavala 53.

ARIZONA: Cochise 6, Gila 1, Graham 1, Maricopa 7, Pima 12, Pinal 6, Santa Cruz 11, Yuma 1. NEW MEXICO: Dona Ana 1, Grant 1, Hidalgo 2. Total of 762 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 148, Chihuahua 74, Coahuila 185, Nuevo Leon 105, Tamaulipas 250. Total of 27 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screwworm flies released: Texas 163,250,000; New Mexico 1,960,000; Arizona 7,990,000; California 600,000; Louisiana 1,230,000; Mexico 11,840,000. (Anim. Health Div.).

HORN FLY (*Haematobia irritans*) - MISSISSIPPI - Up to 500 per cow in Hinds, Lawrence, Itawamba, Prentiss, Benton, Amite, Warren, Madison, Monroe, and Oktibbeha Counties. (Robinson). ILLINOIS - Absent in Fayette County (east-southeast area). Counts per head on pastured cattle by area: Southern 20, central 145, northern 19.4. (Ill. Ins. Rpt.). NEBRASKA - Counts per head on cattle on irrigated pastures in Logan and McPherson Counties: 100-200 on young animals, 300-400 on older animals. Counts on dryland range herds in Lincoln, Logan, McPherson, and Keith Counties averaged 100 per head on young animals, and up to 500 on older animals. *H. irritans* averaged several thousand per head on bulls. (Campbell). OKLAHOMA - Averaged 600 per head on cows and 1,600 per head on bulls in Payne County. Moderate to heavy on cattle in Nowata, Okfuskee, Muskogee, Atoka, Cleveland, Pottawatomie, Oklahoma, Garvin, and Cotton Counties. (Okla. Coop. Sur.). UTAH - Ranged 100-350 per animal on range cattle in Oak Creek Canyon, Millard County. (Knowlton).

STABLE FLY (*Stomoxys calcitrans*) - WISCONSIN - Heavy on cattle in Polk and Calumet Counties. Increasing in Dane and Walworth Counties. (Wis. Ins. Sur.).

MOSQUITOES - MINNESOTA - Moderate hatch of *Aedes vexans* in upland areas of metropolitan Minneapolis and St. Paul after rains. Flooding of many backwaters along Minnesota River resulted in heavy hatches of *A. vexans*. Trap collections increased; total of 5,989 female mosquitoes taken in 16 traps. (Minn. Pest Rpt.). ARKANSAS - *Psorophora confinnis* increased, averaged 150 per New Jersey light trap in Prairie and Lonoke Counties. *Anopheles* spp., mostly *A. quadrimaculatus*, ranged 20-30 per trap in same areas. Populations very low in Lawrence County, probably due to extended hot, dry weather. (Meisch). OHIO - Heavy and annoying to man and animals throughout State. (Fox). NEVADA - *Aedes* spp. adults heavy in Douglas County. (Lauderdale).

FACE FLY (*Musca autumnalis*) - NEBRASKA - First of season noted on range animals in Lincoln County. (Campbell). WISCONSIN - Moderate annoyance to cattle in Chippewa and Columbia Counties. (Wis. Ins. Sur.). MISSISSIPPI - Up to 25 per face on cattle in Lee, Chickasaw and Monroe Counties. (Robinson).

CATTLE GRUBS (*Hypoderma* spp.) - UTAH - Adults causing cattle to run in Smithfield and Amalga area of Cache County and Collinston and Fielding area of Box Elder County. (Knowlton). WISCONSIN - Cattle chased by *H. bovis* in Grant, Lafayette, and Chippewa Counties. (Wis. Ins. Sur.).

LONE STAR TICK (*Amblyomma americanum*) - INDIANA - One female and 2 second instar nymphs removed from human at Crane Naval Ammunition Depot property, Martin County. This is a new county record. Determined by D.P. Saunders. (Meyer).

BENEFICIAL INSECTS

A KLAMATHWEED BEETLE (*Chrysolina quadrigemina*) - CALIFORNIA - Heavy adult populations on *Hypericum* in San Rafael, Marin County. Klamath weed starting to bloom in lower elevations. Beetles seen in foothill areas where Klamath weed occurs. (Cal. Coop. Rpt.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (*Oulema melanopus*) - ILLINOIS - Live larvae collected on oats: By T.S. Smith in Schuyler County June 5, in Adams County June 6, in Brown County May 31; by R.B. Halstead in De Kalb County June 7; on wheat by T.S. Smith in Monroe County May 22. Live adults collected on oats in Pope County May 31 and Lee County June 9 by J.E. Schafer; in Union County May 31 and in Pulaski County June 1 by R.W. Elmore. INDIANA - Live adults collected on wheat in Daviess County May 11 by J.C. Larson. MARYLAND - Live adults collected on oats in Frederick County May 18 by G.L. Cunningham, in Howard County May 24 by C.L. Staines, in Montgomery County June 9 by R. Blake; on wheat in Carroll County May 17 by G.L. Cunningham. VIRGINIA - Live larvae on oats in Stafford County May 24 by E.L. Thomson; in Culpeper and Madison Counties May 24 by A.B. Hamon and R.H. Morris. Live adults on oats in Clarke County May 22 by A.B. Hamon and R.H. Morris and in Rappahannock County May 23 by A.B. Hamon and R.H. Morris. All determinations by R.E. White. These are new county records. (PP).

INDIANA - Oviposition near complete in New Carlisle area. Larval populations declined. Most of oats in area beginning to head. (Shade). PENNSYLVANIA - *O. melanopus* light on oats in Mercer County and barley in Westmoreland County. (Thurston, Ode). WEST VIRGINIA - Larvae averaged 2 per stem on 5 acres of headed oats, Pleasants County; 10 per square foot in 1 acre of oats, Wood County; and 3 per stem in 2 acres of oats with 70 percent damage to flag leaf in Mason County. (W. Va. Ins. Sur.).

COMSTOCK MEALYBUG (*Pseudococcus comstocki*) - CALIFORNIA - Door to door survey for release sites for predator release has been completed in Tulare County. Some 2,135,500 *Cryptolaemus* spp. (lady beetles) released at Porterville. Total number for release in 1972 is 3 million. Lacewing eggs released on high hazard trees at rate of 150,000 per week. (Cal. Coop. Rpt.).

GRASS BUGS - IDAHO - Large numbers of undetermined black species found in Howe, Butte County, alfalfa June 8. (Judd). UTAH - *Irbisia pacifica* averaged one per 25 sweeps on crested wheatgrass in Snowville area, Box Elder County. (Knowlton). NEVADA - *I. brachycera* heavily damaged crested wheatgrass east of Ely, White Pine County. (Lauderdale).

GRASSHOPPERS - WISCONSIN - *Melanopus differentialis*, *M. femurrubrum*, and *M. sanguinipes* counts high in Portage, Waupaca, and western Outagamie Counties; counts of 15 per 10 sweeps common. (Wis. Ins. Sur.). NORTH DAKOTA - Dominant species *M. sanguinipes*, *M. bivittatus*, and *M. packardii* (from first instar through adults) economic in several counties. Populations per square yard by county: Bottineau, up to 50 (averaged 8) in margins and roadsides;

McHenry, up to 50 (averaged 11) in margins and roadsides, up to 20 (averaged 2) in fields. Highest infestations seen in untilled stubble fields. Controls applied. (Brandvik). SOUTH DAKOTA - Camnula pellucida eggs hatched near Custer, Custer County, in Black Hills. Nymphs 75-80 per square yard in egg bed areas. Light hatch of other grasshoppers noted across State. (Burge, Rieckman). OKLAHOMA - Cooperative control program underway on 43,500 acres of rangeland in Carter and Murray Counties. Counts of 150-200 per square yard reported from Caddo, Washita, and Kiowa Counties and 10-30 per square yard from Love and Cimarron Counties. Heavy in grassland in Pontotoc and Greer Counties, moderate in Pottawatomie County, and light in Atoka and Oklahoma Counties. Scattered heavy infestations reported from cropland in Marshall County, moderate numbers damaged home gardens in Ottawa and Cotton Counties. Spot treatment of heavy spots, fence rows, and crop margins in Cimarron, Love, and Marshall Counties. (Okla. Coop. Sur.). NEW MEXICO - About 200,000 acres infested in Tatum and Crossroads area in Lea County, economic in 60,000 acres in Union County near Amistad and about 120,000 acres infested in Harding County near infested area in Union County. Infestations spotted in Roosevelt County. (N.M. Coop. Rpt.). NEVADA - Approximately 13,000 acres of cropland and rangeland in Kings River Valley, Humboldt County, and 36,000 acres of cropland and rangeland in Diamond Valley, Eureka County, treated for control of Melanopus sanguinipes and M. bivittatus. (Martinelli et al.).

MORMON CRICKET (Anabrus simplex) - IDAHO - Nymphs and adults ranged up to 4 per square yard in about 200 acres of Willow Creek, Payette County, rangeland. (Homan, June 2).

GYPSY MOTH (Porthetria dispar) - NEW JERSEY - Larvae moving from defoliated areas, becoming a nuisance pest crawling on and into dwellings. (Ins.-Dis. Newsltr.).

JAPANESE BEETLE (Popillia japonica) - RHODE ISLAND - Grubs in lawns in Providence and Washington Counties. Infestations heavier in Providence and Kent Counties than in 1971. (King et al., June 8). PENNSYLVANIA - Larvae less than 2 per square foot in Vernon Township, Crawford County, grain fields. (Palisin). NORTH CAROLINA - First adult of season in Rowan County found in cornfield June 15. Expect damage to grapevines, flowering plums, and soybeans in Piedmont in 14 days. (Bowers, Hunt). SOUTH CAROLINA - Adult feeding heavy on grape vines and roses in Oconee County; controls applied. (McCaskill). ALABAMA - First adult for 1972 trapped June 21 at Haleyville, Winston County. (Pigott).

ORIENTAL FRUIT FLY (Dacus dorsalis) - CALIFORNIA - A single female taken June 1 in McPhail trap in orange tree in Santa Barbara, Santa Barbara County. Determined as a virgin female, 2-3 days old with developing eggs. Determined by M. Wasbauer. (Cal. Coop. Rpt.).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - First-instar larvae light and scattered adjacent to areas treated in Lincoln County in 1971. (Perry).

WESTERN GRAPELEAF SKELETONIZER (Harrisina brillians) - CALIFORNIA - Delimiting survey shows 12 square miles involved in infested area in Santa Clara County. No live skeltonizer recorded for past two years in Sacramento, Placer, or El Dorado Counties. (Cal. Coop. Rpt.).

WHITEFRINGED BEETLES (Graphognathus spp.) - ALABAMA - Adults feeding on peanut plants in Cottonwood area of Houston County. Controls applied to reduce larval damage in future. (Wilson, Stephenson).

WOOLLY WHITEFLY (Aleurothrixus floccosus) - CALIFORNIA - Survey continued with few new infestations found in San Diego County. (Cal. Coop. Rpt.).

HAWAII INSECT REPORT

Turf and Pasture - GRASS WEBWORM (Herpetogramma licarsisalis) larvae trace in 100+ acres of pasture at Kokomo, Maui; less than one larva per 100 square feet. Infestation confined to crabgrass; nil in areas of pangola and Kikuyu grass. Trace in Kikuyu grass pastures at Waihee, Ulupalakua, Kula and Makawao; negligible in same host situation at Haiku and Kaupakulua. (Ah Sam, Miyahira).

General Vegetables - Larval mines of LEAFMINER FLIES (Liriomyza spp.) moderate in 5,000 square feet of long beans at Keeau, Hawaii; 70 percent of leaves with mines affecting 30-50 percent of leaf area. Mines heavy on 5 percent of mostly older leaves; affecting 90+ percent of leaf area. Negligible in 0.25 acre of cucumber seedlings and 0.1 acre of eggplant at Honomu. Larval mines in cucumber planting restricted to cotyledons. (Matayoshi). All stages of GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) generally trace to light in commercial eggplant, long beans, cucumber, and tomato at Keeau, Hawaii. THREE LINED POTATO BEETLE (Lema trilineata) adults light in yard planting of eggplant at Ewa, Oahu; averaged 5 per plant. (Kahale). TOMATO FRUITWORM (Heliothis zea) light in 0.15 acre of tomato at Keeau, Hawaii; 6 percent of fruits with one or more early instar larvae. Trace in adjacent 0.2 acre of same crop; less than 5 percent of fruits infested. (Matayoshi).

Ornamentals - Larvae of a NOCTUID MOTH (Chrysodeixis chalcites) light in commercial plantings of ti (Cordyline terminalis) at Keeau, Hawaii; up to 40 percent of foliage affected in 1.5 acre planting. Fifteen percent of foliage of same ornamental affected in nearby 0.5 acre planting. (Matayoshi).

General Pests - Nymphs and adults of a FLATID BUG (Melormenis antillarium) light on foliage of a citrus tree at Kaneohe, Oahu. Moderate on guava trees and lantana throughout Hilo, Hawaii. M. antillarium first reported in State in September 1970. Activity has been restricted primarily to roadside guava trees. Collected on numerous plants in Puerto Rico, including coffee, lantana, in grapefruit groves and cane fields. (Komatsu, Kawamura).

Beneficial Insects - Moderate to heavy LANTANA CERAMBYCID (Plagiohammus spinipennis) grub activity noted in 0.5 acre of lantana at Ulupalakua, Maui; 114 adults released at this site in April and May 1972. P. spinipennis purposely introduced from Mexico in 1959 to aid in control of lantana. (Ah Sam, Miyahira). On Hawaii, field examination of Indian rhododendron (Melastoma malabathricum) at various areas during May showed average of 46 percent infestation of fruits and terminals by an ARCTIID MOTH (Selca brunella). On Kauai, fruits examined in early May found to be infested 48 and 27 percent respectively, at Hanahanapuni and Knudsen Gap. (Yoshioka, Sugawa).

LIGHT TRAP COLLECTIONS

	Tempera- ture °F.	Precip- itation (inches)	BL = blacklight I = incandescent MV = mercury vapor O = other Type of trap	Agrotis ipsilon (black cutworm)	Estigmene acrea (saltmarsh caterpillar)	Euxoa auxiliaris (army cutworm)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	H. zea (bollworm, corn earworm, tomato fruitworm)	Laspeyresia pomonella (codling moth)	Loxostege commixtalis (alfalfa webworm)	Loxostege rantalis (garden webworm)	Loxostege sticticalis (beet webworm)	Manduca quinquemaculata (tomato hornworm)	Manduca sexta (tobacco hornworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Spodoptera frugiperda (fall armyworm)	Spodoptera ornithogalli (yellowstriped armyworm)	Trichoplusia ni (cabbage looper)	Crops
FLORIDA																								
Gainesville			BL		1			34		4										4				
IOWA																								
Beaconsfield 6/2-5, 6/8			BL	24															2230					
Castana 6/2-3, 6/5-8			BL	1															221					
Kanawha			BL	3													54		813					
KANSAS (County)																								
Brown 6/9, 6/12			BL	36			152										296		160			16	8	
Republic 6/13			BL			20	16			4							76		4			4		
Riley 6/12, 6/15			BL	3		2	16			3									490			12	2	
KENTUCKY																								
Bowling Green 6/13			BL	19															42			7		
Leitchfield 6/12			BL												2									
MICHIGAN																								
Allegan 6/9-13			BL																426					
Lenawee 6/9-13			BL														271		175					
MINNESOTA																								
Crookston 6/7-13			BL														1		53					
Fergus Falls 6/7-13			BL			2											2		14					
Rochester 6/7-13			BL																13					
MISSISSIPPI (County)																								
Jeff Davis 6/9-15			BL	2				2	1	3								30	100			29		
Oktibbeha 6/9-15			BL	3				11	1	32								25	26			21		
Stoneville 6/9-15	65-97		2BL	6	38			25	6	459						2		28	110			78	2	
MISSOURI (County)																								
Green 6/8-14			BL	34														70	419			24		
New Madrid 6/9-15			BL	7						1								200	1187			6		
NEBRASKA																								
Lincoln 6/15			BL	190		130	12										163	403	1206		29	20		
North Platte 6/15			BL			80									4		36		28					
Scottsbluff 6/14			BL			1808	13								4			163	125					

LIGHT TRAP COLLECTIONS

	Temperature °F.	Precipitation (inches)	Type of trap BL = blacklight I = incandescent MV = mercury vapor O = other	*Agrotis ipsilon* (black cutworm)	*Estigmene acrea* (saltmarsh caterpillar)	*Euxoa auxiliaris* (army cutworm)	*Faronta diffusa* (wheat head armyworm)	*Feltia subterranea* (granulate cutworm)	*Heliothis virescens* (tobacco budworm)	*H. zea* (bollworm, corn earworm, tomato fruitworm)	*Laspeyresia pomonella* (codling moth)	*Loxostege commixtalis* (alfalfa webworm)	*Loxostege rantalis* (garden webworm)	*Loxostege sticticalis* (beet webworm)	*Manduca quinquemaculata* (tomato hornworm)	*Manduca sexta* (tobacco hornworm)	*Ostrinia nubilalis* (European corn borer)	*Peridroma saucia* (variegated cutworm)	*Pseudaletia unipuncta* (armyworm)	*Spodoptera exigua* (beet armyworm)	*Spodoptera frugiperda* (fall armyworm)	*Spodoptera ornithogalli* (yellowstriped armyworm)	*Trichoplusia ni* (cabbage looper)	Crops
NORTH DAKOTA																								
Bismarck 6/6			BL			2																		
Bottineau 6/6			BL											280					42					
Fargo 6/13			BL															6						
OHIO																								
Wooster 6/9-15			BL	14													70	44	725			2		
PENNSYLVANIA (District)																								
Northwest 6/1-13			BL																10					
Southwest 6/1-13			BL	1	1												1		13					
Central 6/1-13			BL	5													16		11					
SOUTH DAKOTA																								
Brookings 6/6-10			BL	92			650											423	67					
TENNESSEE (County)																								
Dyer 6/12-16			BL	49				1		3						1	5	233	569			63	2	
Franklin 6/12-16			BL	7						6						5	20		38			10		
Madison 6/12-16			BL	25				5		2					1		1	60	95			27	1	
TEXAS																								
Waco 6/9-15			BL	72	1			135								4		2	9	17		40	17	
VIRGINIA																								
Montgomery 6/8-14			BL	5															10					
Petersburg 6/4-9			BL	2												1			23					
Warsaw 6/6-13			BL												1				14					
WISCONSIN																								
Hancock 6/7-12			BL														60							
Lancaster 6/6-12			BL														99	1	36					
Mazomanie 6/6-14			BL														101	1	35					

JAPANESE BEETLE
Popillia japonica Newman

Selected References
1970-1971

Copies of this bibliography are available from Economic Insect Survey and Detection Staff.

Adler, V. E. and Jacobson, M. 1971. Electroantennogram responses of adult male and female Japanese beetles to their extracts. J. Econ. Ent. 64(6):1561-1562 (Scientific note).

Bennett, G. A. and Shotwell, O. L. 1970. A lipoglycoprotein from hemolymph of healthy and diseased larvae of the Japanese beetle, *Popillia japonica*. J. Invert. Pathol. 15(2):157-164.

Goonewardene, H. F. 1970. Effect of wick area on attractancy of some lures for the Japanese beetle. J. Econ. Ent. 63(2):663-665.

Goonewardene, H. F., White, J. H., Grosvenor, A. E., and Zepp, D. B. 1970. Host plants and the performance of some lures for Japanese beetles. J. Econ. Ent. 63(4):1289-1292.

Goonewardene, H. F. and Zepp, D. B. 1970. Rearing the immature feeding stages of the Japanese beetle in pans. J. Econ. Ent. 63(3):859-860.

Goonewardene, H. F., Zepp, D. B., and Grosvenor, A. E. 1970. Virgin female Japanese beetles as lures in field traps. J. Econ. Ent. 63(3):1001-1003.

Hamilton, D. W. and Coauthors. 1971. Low-volume aerial application of carbaryl over a large area to reduce a population of Japanese beetles. J. Econ. Ent. 64(1):68-70.

Hamilton, D. W., Schwartz, P. H., and Townshend, B. G. 1970. Capture of bumble bees and honey bees in traps baited with lures to attract Japanese beetles. J. Econ. Ent. 63(5):1442-1445.

Hamilton, D. W., Schwartz, P. H., Townshend, B. G., and Jester, C. W. 1970. Attractants for Japanese beetles screened in the field 1965-67. J. Econ. Ent. 63(3):832-834.

Hamilton, D. W., Schwartz, P. H., Townshend, B. G., and Jester, C. W. 1971. Effect of color and design of traps on captures of Japanese beetles and bumblebees. J. Econ. Ent. 64(2):430-432.

Hamilton, D. W., Schwartz, P. H., Townshend, B. G., and Jester, C. W. 1971. Traps reduce an isolated infestation of Japanese beetle. J. Econ. Ent. 64(1):150-153.

Ladd, T. L., Jr. 1970. Mating competitiveness of male Japanese beetles sterilized with tepa. J. Econ. Ent. 63(2):438-439.

Ladd, T. L., Jr. 1970. Screening of candidate chemosterilants against the Japanese beetle. J. Econ. Ent. 63(2):458-460.

Ladd, T. L., Jr. 1970. Sex attraction in the Japanese beetle. J. Econ. Ent. 63(3):905-908.

Ladd, T. L., Jr. 1971. Attractancy of mixtures of lures containing methyl cyclohexanepropionate for the Japanese beetle. J. Econ. Ent. 64(6):1560.

McGovern, T. P. and Beroza, M. 1970. Volatility and compositional changes of Japanese beetle attractant mixtures and means of dispensing sufficient vapor having a constant composition. J. Econ. Ent. 63(5):1475-1479.

McGovern, T. P. and Coauthors. 1970. Methyl cyclohexanepropionate and related chemicals as attractants for the Japanese beetle. J. Econ. Ent. 63(1):276-280.

McGovern, T. P. and Coauthors. 1970. Phenethyl propionate, a potent new attractant for Japanese beetles. J. Econ. Ent. 63(6):1727-1729.

Payne, J. A. and Schwartz, P. H., Jr. 1971. Feeding of Japanese beetles on phylloxera galls. Ent. Soc. Amer. Ann. 64(6):1466-1467.

Schwartz, P. H., Jr., Hamilton, D. W., and Townshend, B. G. 1970. Mixtures of compounds as lures for the Japanese beetle. J. Econ. Ent. 63(1):41-43.

Schwartz, P. H., Jr., and Jurimas, J. P. 1970. An inexpensive machine for dispensing soil and water into 1-oz plastic cups used to rear Japanese beetles in the laboratory. J. Econ. Ent. 63(3):992-993.

Schwartz, P. H., Jr., and Jurimas, J. P. 1970. Development and survival of Japanese beetle larvae on carrot and other foods. Ent. Soc. Amer. Ann. 63(4):1047-1048.

Schwartz, P. H., Jr., Jurimas, J. P., and Hickey, L. A. 1970. Substrata for rearing the Japanese beetle in the laboratory. Ent. Soc. Amer. Ann. 63(4):1083-1085.

St. Julian, G., Sharpe, E., and Rhodes, R. A. 1970. Growth pattern of Bacillus popilliae in Japanese beetle larvae. J. Invert. Pathol. 15(2):240-246.

Turco, C. P. 1970. Neoaplectana hoptha, sp. n. (Neoaplectanidae: Nematoda), a parasite of Japanese beetle, Popillia japonica Newm. Helminthol. Soc. Wash. Proc. 37(1):119-121.

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ADDITIONAL REFERENCES 1968 AND 1969

(Continued on next page)

These references supplement those published in CEIR 19(48):857, 1969.

Bennett, G. A., Shotwell, O. L., Hall, H. H., and Hearn, W. R. 1968. Hemolymph proteins of healthy and diseased larvae of the Japanese beetle, *Popillia japonica*. J. Invert. Path. 11(1):112-118.

Cartier, J. J. 1969. *Popillia japonica* in the south of Quebec (first found in 1957). Ent. Soc. Quebec Ann. 14(1):10. In Fr.

Goonewardene, H. F. and McKay, J. E. 1969. An artificial diet for the adult Japanese beetle. J. Econ. Ent. 62(4):964.

Schwartz, P. H. and Townshend, B. G. 1968. Effects of milky disease on hemolymph coagulation and on the number of hemocytes in infected larvae of the Japanese beetle. J. Invert. Path. 12(3):288-293.

Weiner, B. A., St. Julian, G., and Kwolek, W. F. 1969. Rate of oxygen uptake of healthy and diseased larvae of the Japanese beetle. J. Invert. Path. 13(2):250-255.

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WEATHER OF THE WEEK ENDING JUNE 19

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PRECIPITATION: Thunderstorms were widespread over much of central and eastern portions of the Nation early in the week. Some thunderstorms in the central Great Plains were accompanied by hail and damaging winds. Late Monday evening, June 12, thunderstorms lashed Peoria, Illinois with winds gusting to 58 m.p.h. Strong winds downed trees and power lines in the De Kalb and Elgin, Illinois vicinities Monday night. At Bismarck, North Dakota, winds gusted to 56 m.p.h. and hail up to ½ inch in diameter pounded Dickinson, North Dakota. Numerous thunderstorms developed at midweek from the Great Plains to the middle Atlantic coast in warm, humid gulf air that covered the area. Some produced heavy rain, hail, and high winds. Some 24-hour totals in the Mississippi River Valley exceeded 3 inches. Generous rains soaked the large area from northeastern Texas to western Indiana where May precipitation totals were generally less than 50 percent of the normal. Local flash floods occurred late Wednesday in low areas. Showers and thunderstorms continued Thursday along a cold front that extended from western New York to eastern Texas. The Pacific Northwest and northern Rocky Mountains also received scattered showers Thursday. The weather became quite disagreeable over much of the Nation Friday afternoon. Thunderstorms spotted the northern and central Great Plains and were numerous from eastern Texas to New York. A few funnel clouds and tornadoes occurred in the northern portions of Louisiana and California. Many citizens in parts of Rapid City, South Dakota left their homes Saturday when 2-3 inches of rain fell in the area, accompanied by winds gusting to 50 m.p.h. Also Saturday, tornadoes struck spots in Colorado, Wyoming, and Texas, and heavy rains fell in some localities in West Virginia and Virginia. Hurricane Agnes developed late in the week and by late Sunday was approaching the Florida Panhandle. Heavy thunderstorms continued in the Great Plains.

TEMPERATURE: A large high drifted eastward across the middle Atlantic coast Monday forenoon June 12, bringing recordbreaking cold to many eastern States. Concord, New Hampshire registered 30 degrees and Columbia, South Carolina 46 degrees Monday morning. The rest of the Nation was comfortably warm except for hot weather over the southwestern deserts. Minneapolis, Minnesota and Lafayette, Louisiana registered 92 degrees Monday afternoon and the mercury at Blythe, California climbed to 110 degrees. By midweek, tropical gulf air covered the eastern half of the Nation. With it came hot, humid weather characteristic of summers in the East. Rochester and Syracuse, New York, recorded 93 and 92 degrees, respectively, Thursday afternoon. Meanwhile, cooler, drier air moved into the northern Great Plains where Thursday's maximums were mostly in the 60's. Bemidji and Duluth, Minnesota, registered 53 degrees Thursday afternoon. Cool air moved into the northern Great Plains and Great Lakes region late in the week with parts of those areas 20 degrees cooler Saturday afternoon than a few days before. Maximums continued in the 80's and 90's over the Deep South and in the southwestern deserts. Afternoon temperatures soared above the century mark each afternoon. Blythe, California registered 106 degrees to 109 degrees each afternoon from Thursday to Sunday.

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